



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/697,730	10/25/2000	Daniel R. Cassidy	SUNIP412/5329	4546
22434	7590	04/15/2004	EXAMINER	
BEYER WEAVER & THOMAS LLP P.O. BOX 778 BERKELEY, CA 94704-0778			SEFCHECK, GREGORY B	
			ART UNIT	PAPER NUMBER
			2662	9

DATE MAILED: 04/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/697,730	CASSIDAY ET AL.
	Examiner	Art Unit
	Gregory B Sefcheck	2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 18-28 and 31-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 18-28 and 31-34 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 08 March 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some *
 - c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7_8</u> . | 6) <input type="checkbox"/> Other: ____. |

Art Unit: 2662

DETAILED ACTION

- Applicant's Amendment filed 3/8/2004 is acknowledged.
- Claims 1-17 and 29-30 are cancelled. Claims 31-34 are new.
- Claims 18-28 and 31-34 are pending.

Drawings

1. The drawings were received on 3/8/2004. These drawings are acceptable.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 18, 20-23, 25, 27, and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki (US006625160B1).

- In regards to Claim 18 and 23,

Art Unit: 2662

Suzuki discloses a method of routing data received in an interconnect node of a data communication system (Col. 1, lines 37-63; claim 23 – method of routing data received in a node).

Referring to Figs. 5, Suzuki shows data packets received on input port 500. Information in the header of each data packet is examined at mapper 506 in order to sort the data packet to its appropriate buffer 516/518 (Col. 8, lines 52-62; claim 18 – node in interconnect link system having first/second buffers for receiving first/second data segments passing a first/second criteria on a predetermined one or more bits for the first/second segments; claim 23 – examining data based on one or more categorical bits in the data packet; claim 23 – sorting the data to one of a plurality of buffers based on the categorical bits in the data packet.

The packets in buffers 516/518 can then be input to the corresponding crossbar scheduler 528/530 for transmission onto output 512/514, such that data packets in buffer 516 can be accessed independently and simultaneously with data packets in buffer 518 (Col. 6, lines 30-35; Col. 10, lines 25-29; claim 18 – node in interconnect link system having first/second crossbar for receiving the first/second data segments from the first/second buffer such that the first/second data segments are routed to one or more transmitters in one clock cycle; claim 23 – inputting the data to one or more crossbars corresponding to buffers; claim 23 – routing the data to a transmitter such that two packets can be processed by the node in one clock cycle).

- In regards to Claim 20, 22 and 25,

Suzuki discloses a method of routing data received in an interconnect node of a data communication system that covers all limitations of the parent claim.

Suzuki shows that the receiver (Fig. 5, 506) is capable of sorting multiple data segments into the receiver's first or second buffers 516-518 (claim 22 – first and second buffers are in the receiver) based on the value of bits contained in the header of the packet meeting a first or second criteria (Col. 8, lines 55-60; claim 20 – receiver capable of sorting a plurality of data segments based on the predetermined one or more bits in a data segment; claim 25 – sorting the data includes routing the data packet to a first or second buffer if the categorical bits meet a first or second criteria).

- In regards to Claim 21,

Suzuki discloses a method of routing data received in an interconnect node of a data communication system that covers all limitations of the parent claim.

Suzuki shows that the transmitter (Fig. 5, 528-530) contains a scheduler (arbiter) to decide which data segment to transmit (Col. 9, lines 9-15; claim 21 – a transmitter having an arbitrator to decide which data segment to transmit).

- In regards to Claim 27,

Suzuki discloses a method of routing data received in an interconnect node of a data communication system that covers all limitations of the parent claim.

Referring to Fig. 5, Suzuki shows that inputting the data to the crossbar schedulers 528-530 routes the data packet to transmission lines 512-514 (claim 27 – inputting the data to crossbars comprises routing the data packet to a transmitter).

- In regards to Claim 28,

Suzuki discloses a method of routing data received in an interconnect node of a data communication system that covers all limitations of the parent claim.

Suzuki shows that the crossbar schedulers 528-530 maintain the order of transmission of data from their associated queues (Col. 9, lines 9-15). This can be done in such a way as to maintain the order of sequential data packets from the input, through the buffers, to output (Col. 4, lines 10-20; claim 28 – maintaining the order of sequential data packets passing through one of the plurality of buffers).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 19, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Kessler (US006567900B1).

- In regards to Claim 19, 24, and 26,

Suzuki discloses a method of routing data received in an interconnect node of a data communication system that covers all limitations of the parent claims. Suzuki shows sorting received data packets based on information contained in the header of the packet.

Suzuki does not explicitly show examining the received data to determine if the stripe bit is 0 or 1.

Kessler discloses address interleaving for routing data in a computer system. Kessler shows accessing an address based on determining if the stripe bit is 0 or 1 (Col. 13-14, lines 60-17; claim 19 – predetermined one or more bits being a stripe bit used for determining the appropriate buffer to sort the data segments into; claim 24 – examining the data includes determining where a stripe bit is 0 or 1; claim 26 – first/second criteria is that one or more of the categorical bits = 0/1).

It would have been obvious to one of ordinary skill in the art to modify the method of Suzuki by determining the value of the stripe bit, as taught by Kessler, for use in sorting the received data into its appropriate buffer. In this way, the received data can be sorted for transmission based on the address carried in the packet header by only examining the contents of the stripe bit, thus enabling faster and more efficient sorting of the data for transmission.

6. Claims 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of McGill (US005436886A).

- In regards to Claims 31 and 32,

Suzuki discloses routing data received in an interconnect node of a data communication system (Col. 1, lines 37-63; claim 31 – routing node in a packet network having a plurality of input and output lines).

Referring to Figs. 5, Suzuki shows data packets received on input ports 500-504 (claim 32 – plurality of receivers). Information in the header of each data packet is examined at mapper 506 in order to sort the data packet to its appropriate buffer 516/518 (Col. 8, lines 52-62; claim 31 – first buffer for receiving data containing one or more selected bits meeting a predetermined criteria; claim 31 – second buffer to receive at least some of the data not directed to the first buffer).

The packets in buffers 516/518 can then be input to the corresponding crossbar scheduler 528/530 for transmission onto output 512/514, such that data packets in buffer 516 can be accessed independently and simultaneously with data packets in buffer 518 (Col. 6, lines 30-35; Col. 10, lines 25-29).

Suzuki does not show a first or second crossbar that connects data from the first and second buffer to any of the plurality of output lines.

McGill discloses an ATM switch for routing data packets between multiple input and output ports. Referring to Figs. 1 and 3, McGill shows a receiving port A that

receives data from LC0. The received data is then received in a first and/or second TLIC (buffer) through multiplexers AX0 and AX1. McGill further shows a first and second switch (crossbar) associated with the first and second TLIC for connecting data to any of the plurality of output lines (claim 31 – first and second crossbar for connecting data from first/second buffer to any of the plurality of output lines, whereby data from first input line may be transmitted to any output line through either the first or second crossbar).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the switching node of Suzuki by enabling the first and second crossbars to connect data from the first and second buffers to any of the plurality of output lines. Such a modification would provide redundancy to enable that data from either buffer may be connected to its appropriate output line if one of the two crossbars fails.

- In regards to Claims 33 and 34,

Suzuki v. McGill discloses a method of routing data received in an interconnect node of a data communication system that covers all limitations of the parent claim.

Suzuki shows that the receiver (Fig. 5, 506) is capable of sorting multiple data segments into the receiver's first or second buffers 516-518 based on the value of bits contained in the header of the packet meeting a first or second criteria (Col. 8, lines 55-60; claim 33 – receiver passes data to first buffer if stripe bit is a designated value; claim 34 – data passed to second buffer if stripe bit is not the designated value).

Response to Arguments

7. Applicant's arguments filed 3/8/2004 have been fully considered but they are not persuasive.

- In Remarks on pg. 6, the Applicant contends "lookup table mappers are each arranged to map each received data packet to its appropriate output line." The Applicant concludes that "the crossbar functionality of cross bar switch 136 (of Suzuki) is effectively performed by the lookup tables." Furthermore, on the basis of this viewpoint, the Applicant contends that "queues 516-526 in Suzuki do not pass packets to associated crossbar switches as required by claim 18 and 23."

- It is the opinion of the Examiner that the lookup table mappers shown in Figs. 5 and 6 of Suzuki map each received data packet to its appropriate buffer/queue. Crossbar schedulers 528 and 530 are disclosed to receive data segments from the associated buffers 516-526, thereby performing the cross bar functionality of the arrangement.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Parruck et al. (US006069893A) discloses asynchronous transfer mode switching architectures having connection buffers
- Caldara et al. (US005982771A) discloses controlling bandwidth allocation using a pace counter
- Lund et al. (US005517495A) discloses fair prioritized scheduling in an input-buffered switch
- Kakuma et al. (US005488606A) discloses a procedure for switching-over systems

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B Sefcheck whose telephone number is 703-305-0633. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS
4-7-2004


HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600